

Serial No.: 09/939,048

### **REMARKS**

Claims 1-7, 18, 20 and 22 are presently under consideration in the application. Favorable reconsideration of the application is respectfully requested.

#### ***I. REJECTION OF CLAIMS 1, 18, 20 AND 22 UNDER 35 USC §112, 2<sup>nd</sup> ¶***

Claims 1, 18, 20 and 22 stand rejected under 35 USC §112, second paragraph, as being indefinite. Applicants respectfully traverse this rejection for at least the following reasons.

Referring to claim 1, for example, the present invention relates to a signal processing apparatus. The signal processing apparatus includes a decoder for decoding a stream signal so as to generate a digital audio signal of a low frequency effect (LFE) channel, and digital audio signals of first through n<sup>th</sup> channels (where  $n \geq 2$ ). An adder section adds the digital audio signal of the LFE channel and the digital audio signal of a specified channel among the first through n<sup>th</sup> channels so as to generate an addition signal.

Furthermore, the signal processing apparatus includes an n number of D/A conversion sections for converting the digital audio signals of the first through n<sup>th</sup> channels, *excluding the digital audio signal of the specified channel*, and the addition signal into n types of analog audio signals.

The Examiner submits that the phrase "*excluding the digital audio signal of the specified channel*" (e.g., claim 1, lines 18-19) is unclear. The Examiner suggests an interpretation on page 2 of the Office Action. However, applicants respectfully believe the phrase is clear and, in fact, well represented in the specification.

Serial No.: 09/939,048

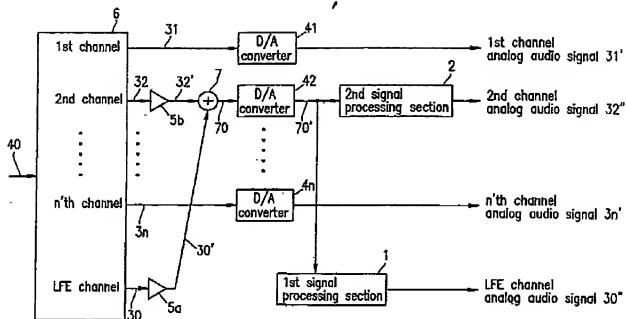


Fig. 1A (Present invention)

For example, Fig. 1A of the present application (reproduced above) illustrates how a stream signal 40 is decoded by decoder 6 and includes a low frequency effect (LFE) channel and  $n$  digital audio channels (i.e., 1<sup>st</sup>, 2<sup>nd</sup>, ..., and  $n^{\text{th}}$ ). As is exemplified in Fig. 1A, a specified channel (e.g., the 2<sup>nd</sup> channel) among the 1<sup>st</sup> through  $n^{\text{th}}$  channels is added to the LFE channel by an adder 7. Next,  $n$  D/A conversion sections (i.e., 41, 42, ..., and 4 $n$ ) are included for converting the digital audio signals of the first through  $n^{\text{th}}$  channels, *except* for the specified channel (e.g., the 2<sup>nd</sup> channel) amongst the  $n$  channels. Thus, as shown in Fig. 1A,  $(n-1)$  D/A conversion sections are used for converting the 1<sup>st</sup> thru  $n^{\text{th}}$  channels with the exception of the specified 2<sup>nd</sup> channel. The remaining D/A conversion section is used for converting the addition signal output by the adder 7 which represents the combination of the LFE channel and the specified 2<sup>nd</sup> channel.

Serial No.: 09/939,048

As is discussed in the present application, the configuration as recited in the claims and exemplified in Fig. 1A is beneficial in that the present invention enables the signal processing apparatus/method to require one less D/A converter. As is shown in Fig. 1A, the signal processing apparatus only requires  $n$  D/A converters. The Low Frequency Effect (LFE) channel does not require its own D/A converter. Rather, the LFE channel is added to the specified channel and the combined addition signal is converted through a single D/A converter. Thereafter, the LFE channel audio is separated from the output of the D/A converter by a first signal processing section and provided to the appropriate output. Similarly, the second signal processing section provides the originally intended specified channel to the output.

Accordingly, applicants respectfully submit that claim 1 together with claims 18, 20 and 22 are clear and definite. Should the Examiner continue to feel the claims are indefinite, applicants respectfully request that the Examiner clarify further exactly what is considered unclear. Otherwise, withdrawal of the rejection is respectfully requested.

**II. REJECTION OF CLAIMS 1-7, 18, 20 AND 22 UNDER 35 USC §103(a)**

Claims 1-7, 18, 20 and 22 stand rejected under 35 USC §103(a) based on *Suzuki (JP 10-210600)*.<sup>1</sup> Applicants respectfully traverse the rejection for at least the following reasons.

Claims 1, 18, 20 and 22 each recite the feature of an  $n$  number of D/A conversion sections for converting the digital audio signals of the first through  $n$ 'th channels, *excluding the digital audio signal of the specified channel*, and the addition signal into  $n$  types of analog audio signals.

---

<sup>1</sup> The Examiner and Applicants rely on USP 6,381,333 as a translation.

Serial No.: 09/939,048

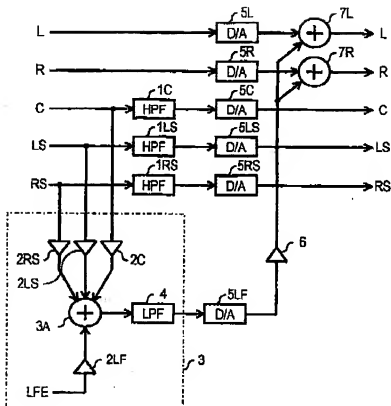


Fig. 1 (Suzuki)

*Suzuki* describes a number of different embodiments for acquiring and distributing low frequency signal components of multi-channel audio signals. For example, Fig. 1 of *Suzuki* (reproduced above) illustrates obtaining the low frequency components of the center, left rear and right rear speakers and combining them with the LFE channel. The low frequency components are then redistributed to the left and right front speakers via adder 7L and 7R.

Serial No.: 09/939,048

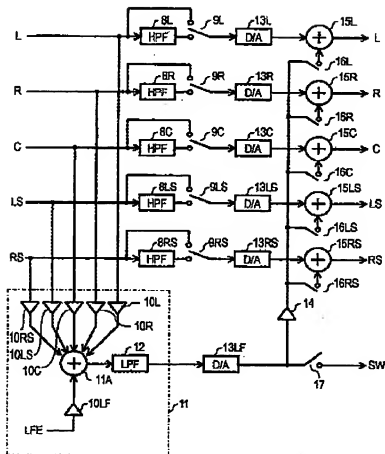


Fig. 2 (Suzuki)

The embodiment of Fig. 2 of *Suzuki* (reproduced above) provides a bit more flexibility in controlling where the low frequency components of each of the channels are redistributed.

Nevertheless, applicants note that each of the embodiments in *Suzuki* require a D/A converter for each of the  $n$  channels and the LFE channel. In *Suzuki*, there is no teaching or suggestion of converting of each of the  $n$  channels, with the exception of a specified channel, and the addition signal by  $n$  D/A converters as recited in claims 1, 18, 20 and 22. Moreover, there is no teaching or suggestion of separating the original

Serial No.: 09/939,048

LFE and the specified channel as recited in claims 1, 18, 20 and 22 in order to reproduce the original signals.

In other words, *Suzuki* does not teach or suggest in any manner a configuration which permits the required number of D/A converters to be reduced as taught in the present invention. While the Examiner indicates it would be obvious to include signal processing sections, *Suzuki* simply does not teach or suggest the particular manner in which the signal processing sections are utilized to separate the previously combined signals as in the present invention.

Applicants therefore respectfully submit that the present invention as identified by claims 1-7, 18, 20 and 22 is both novel and non-obvious in view of the teachings of *Suzuki*. Withdrawal of the rejection is respectfully requested.

### **III. CONCLUSION**

Accordingly, all claims 1-7, 18, 20 and 22 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

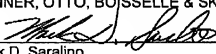
Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Serial No.: 09/939,048

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

RENNER, OTTO, BOJSSELLE & SKLAR, LLP

  
Mark D. Saralino  
Reg. No. 34,243

DATE: July 28, 2005

The Keith Building  
1621 Euclid Avenue  
Nineteenth Floor  
Cleveland, Ohio 44115  
(216) 621-1113  
8:\GENYAMA\Yamap775\yamap775.amd.wpd